Overview

SAS/ETS 13.2 introduce many new estimation features, including Bayesian estimation for count data models, new compound distribution model features, a new data access engine, and many other enhancements.

Compound Distribution Models

SAS/ETS 13.2 include a new utilities for simulating compound distribution models (CDMs): the HPCDM procedure enables you to simulate aggregate loss distribution models, which are useful in assessing operational risk and defining appropriate capital requirements in situations in which rare but catastrophic events occur. The HPCDM procedure combines results of two other SAS/ETS procedures, the COUNTREG and SEVERITY procedures, giving the modeler extreme flexibility with which to model the number of events and size of losses. This flexibility can take the form both of distributional assumptions on the loss and of count data models, each of which contains different regressors.

The HPCDM procedure includes the following features:
- simulation of aggregate loss models
- what-if analysis
- parallelized simulation that takes advantage of multicore machines
- ODS output for visual inspection of results

SASEQUANDL Interface Engine

Quandl data can now be accessed from new SAS/ETS access engine utilities. These utilities conveniently enable you to dynamically query the most up-to-date information from the Quandl databases and then include these data to enrich and enhance your models.

Multivariate Time Series Models

PROC VARMAX now provides p-values for the Johansen cointegration rank test as well as multistep forecasts for the multivariate GARCH models.

Panel and Time Series Tests

A variety of new model specification tests have been added to the PANEL procedure. These tests check the statistical assumptions of the models concerning stationarity, cointegration, and structural change, and they include p-values that are generated by high-performance simulation methods. Many software packages report only selected critical values for these tests. For panel data models, the PANEL procedure supports the following new test statistics and methods:
- First-differenced methods for one-way and two-way models
- Panel poolability tests
- Lagrange multiplier (LM) test for cross-sectional and time effects
Bayesian Estimation

The COUNTREG procedure now provides users with Bayesian estimation methods. You can now use Bayesian simulation techniques to estimate the following models:

- Poisson (zero-Inflated) models
- negative binomial (zero-inflated) models

The main features of the Bayesian methods include the following:

- choice of prior distributions
- tools to initialize and tune the MCMC algorithm
- multithreaded Metropolis sampling
- convergence diagnostic tools such as Raftery-Lewis, Heidelberger-Welch, and Geweke
- prior and posterior predictive analysis

Other Enhancements to SAS/ETS

The SEVERITY and HPSEVERITY procedures now support a new OUTSCORELIB statement to create scoring functions. Scoring eliminates the need of writing a complex DATA step that reads the estimates from the OUTEST= data set. Both procedures also now support a new OFFSET= option in the SCALEMODEL statement to model the scale parameter per unit, which is a measure of exposure. The SEVERITY procedure also supports CLASS statements. You can specify a wide variety of regression effects, such as singleton continuous effects, polynomial continuous effects, main CLASS variable effects, and more.

The COUNTREG procedure now supports the STORE statement and an enhanced CLASS statement. The STORE statement enables previously estimated models to be used for out-of-sample prediction and other post-estimation routines. The procedure is also multithreaded for faster computation.

The QLIM procedure has added an automated algorithm that searches for a good representation of the posterior distribution for Bayesian estimation.

The system generalized method of moments (GMM) estimator proposed by Blundell and Bond for dynamic panel models is now available in the PANEL procedure.

The X12 procedure now allows users to:

- the size of forecast confidence limits
- the difference in critical values for almost outliers
- the alpha value for outlier detection
- the method of calculating the critical value for outlier detection based on the alpha value and the number of observations in the span that is used for analysis
- the number of level-shift outliers to consider for forming a temporary level shift
- the method of adding outliers at each iteration of model estimation
- the rate of decay for temporary change outliers
- the moving average filter for each period

For More Information

For more information, ask your organization’s SAS representative to contact the SAS Customer Interaction Center at 1.800.727.0025.